

CLAIMS

1. A stackable network unit including:

5 a multiplicity of ports for receiving and forwarding data packets and at least one cascade port for the transmission of data packets to and from other units in a stack; and

10 control logic for forwarding control messages to and receiving control messages from the next succeeding and the next following units in the stack by way of a respective half-duplex control link;

15 wherein the control logic is responsive to the absence of control messages from one or other of the control links to redirect control data intended for that control link to the other control link.

2. A stackable network unit according to claim 1 wherein the control data identifies which units are active in said stack.

20 3. A stackable network unit according to claim 1 wherein the network unit includes means responsive to control data from said messages for controlling the forwarding of data packets from the cascade port.

25 4. A stackable network unit including:

a multiplicity of ports for receiving and forwarding data packets; and

30 at least two cascade ports for the transmission of data packets to and from other units in a stack;

control logic for forwarding control messages to and receiving control messages from the next succeeding and the next following units in the stack, said control messages including operational status information; and

a switching engine for directing packets received at a port of said unit to at least one other port of said unit;

wherein the unit is responsive to control data from said messages to control the switching engine to redirect data packets otherwise intended for one cascade port to a different cascade port.

5. A stackable network unit according to claim 4 wherein the control logic is responsive to the absence of control messages from an adjacent unit to loop back control data intended for that unit.

6. A stackable network unit according to claim 4 wherein the unit is responsive to particular control data from said messages for inhibiting the operation of the switching engine such that it does not redirect data packets.

7. A stackable network unit according to claim 4 wherein the unit includes a processor which has recourse to registers which store the control data.

8. A control device for transmitting and receiving control frames of status and control data for a cascaded stack of network units, comprising:

means for transmitting control frames and receiving control frames at a first port;

means for receiving and transmitting control frames at a second port;

5 means for detecting absence of valid control frames at the first port to cause loop-back of data intended for the first port to provide control frames forwarded from the second port; and

10 means for detecting absence of valid control frames at the second port to cause loop-back of data intended for the second port to provide control frames forwarded from said first port.

9. A control device according to claim 8 and further comprising:

15 first storage means for storing data from control frames receiving at said second port and for providing data for control frames forwarded from the first port; and

20 second storage means for storing data from control frames receiving at said first port and for providing data for control frames forwarded from said second port; wherein

25 the loop-back of data intended for the first port extends from the first storage means to the second storage means and the loop-back of data intended for the second port extends from the second storage means to the first storage means.

10. A control device according to claim 9 wherein:

30 the first storage means comprises a first set of registers for data from control frames received at the second port and a second set of registers for providing data for control frames forwarded from the first port;

the second storage means comprises a third set of registers for data received from control frames at the first port; and

5 wherein the second set of registers and the first port are selectively coupled to the third set of storage registers and the third set of storage registers and the second port are selectively coupled to the first set of storage registers.

10 11. A stack of network units comprising:

15 a plurality of network units, each network unit including a multiplicity of ports including at least one cascade port for receiving and forwarding addressed data packets and a switching engine responsive to address data within packets to direct packets received by the network unit to at least one of the ports;

20 at least one cascade data path for the transmission of address data packets between the network units, including at least one cascade port on each network unit and communication links which couple a cascade port of one network unit to a cascade port of the next network unit;

25 a control device for each network unit, these control devices providing a control path for the transmission of control frames including control data between the network units, each control device comprising means for transmitting control frames to the control device of the adjacent succeeding network unit and receiving control frames therefrom and means for receiving control frames from the control device of the adjacent previous network unit and transmitting control frames thereto and
30 means responsive to the absence of control frames from one or other of

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